MEDICAL PRACTICE

For Debate . . .

Measles, mumps, and rubella: the need for a change in immunisation policy

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Abstract

There is growing evidence that the present policy of childhood immunisation in the United Kingdom is inadequate. It is unlikely ever to achieve complete eradication of the congenital rubella syndrome and measles, and the problem of mumps has not even begun to be addressed. After a coordinated campaign to increase uptake of immunisation in Fife the uptake of rubella immunisation in teenage girls increased from 75% in 1981 to 94% in 1985 and the uptake of measles vaccination in preschool children from 55% in 1981 to 81% in 1985. There are a few girls each year who do not accept rubella immunisation, whose immune state is unknown, and who are consequently at risk of rubella during future pregnancies. Despite the increased uptake of measles vaccine over the past four years there is currently an epidemic of measles in Fife, with 544 notified cases in the first quarter of 1986. In 1984, 19 Fife residents were admitted to hospital because of complications of mumps.

The time is ripe for a complete reassessment of the national immunisation policy.

Introduction

The current policy of immunisation in the United Kingdom is to offer protection against rubella only to schoolgirls and women of childbearing age who are not immune, to offer measles vaccine in the second year of life to all children, and not to vaccinate routinely against mumps. The elimination of the congenital rubella syndrome, measles, and mumps requires sufficiently high uptake of vaccine to achieve herd immunity.[1] In 1981 only 75% of first year secondary schoolgirls in Fife were immunised in our annual rubella campaign and only 55% of children born in 1979 were protected against measles. No data are available on the susceptibility of our community to mumps. In response to this unacceptable state of affairs we set about reviewing our immunisation programme.

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Methods and results

Rubella—We approached the problem of inadequate uptake of rubella vaccination by working with the local education authority to ensure a coordinated approach in schools. Staff arranged for all first year secondary schoolgirls to view a health education film on rubella and to take part in a discussion afterwards. Consent forms were then issued and checked against class lists. Two to three weeks later the vaccine was given and the record of immunisation completed. We persisted in tracing girls who had not been immunised, whom we had identified by name, until we were convinced that further follow up would be totally unproductive. Table I shows the initial results of the campaigns in 1984 and 1985. Before the follow up of named girls 94% had been immunised in both years. After follow up 2583 (97%) of the 1984 cohort and 2304 (96%) of the 1985 cohort had been immunised or were naturally immune.

Measles—We have already reported on the improvements achieved in our measles immunisation programme.[2] In 1981, 55% of children born in 1979 were immunised. Our most recent survey of 297 children born in December 1983 indicated that 241 (81%) were vaccinated before their second birthday. For all preschool children the uptake of immunisation is currently over 80%. Table II shows that, despite this improvement, this uptake is still inadequate in preventing epidemics. Whereas 236 cases of measles were notified in Fife during the whole of 1985, 544 cases were reported during the first quarter of 1986. Of this year's cases, 33 were infants, 128 other preschool children, 332 schoolchildren aged 5-15, and 51 aged 16 or over. A total of 95 had been

TABLE I—*Results of initial rubella campaigns among first year secondary schoolgirls in Fife, 1984-85*

	No (%) of schoolgirls	
	1984	1985
Immunised by clinical medical officer	2155 (81)	1853 (77)
Immunised by general practitioner or other doctor	339 (13)	393 (16)
Still to attend general practitioner	13	39 (2)
Immunisation refused	55 (2)	55 (2)
Absent	68 (3)	57 (2)
Unaccounted for	32 (1)	
Total	2662 (100)	2397 (100)

TABLE II—*Notification of measles in Fife, 1985-6*

	1985				1986
	Jan-Mar	April-June	July-Sept	Oct-Dec	Jan-Mar
Notifications	18	43	92	83	544

immunised; included among these were 87 of the 451 children aged 2-15, all of whom came within the age group that should have been protected.

Mumps—We reviewed the hospital case notes for residents in Fife admitted with mumps in 1984, a year in which laboratory reports for Scotland as a whole suggested a low incidence of the disease.[3] Whereas only six patients with measles needed admission in that year, 19 required admission for mumps. Complications included aseptic meningitis (11 patients), mild pancreatitis (two), febrile convulsions (two), arthritis (one), and orchitis (one). All patients were over 18 months of age, and the average duration of stay in hospital was 6·6 days; three patients required admissions of two weeks or more.

Discussion

Clearly, high uptake of rubella immunisation can be achieved if inertia in the health service is replaced by a coordinated strategy; such a strategy increased uptake in our area from 75% to 94%. We have now reached the stage of dealing with named schoolgirls who have escaped the net, and each is followed up individually. This approach, however, has increased the total vaccinated by only a further 2-3%, and several problems remain. Firstly, several girls still refuse immunisation for various reasons. Secondly, we do not know which girls fail to acquire protection by immunisation. Thirdly, there is always uncertainty about the immune state of those who are educated outside the state system or who attend schools outside our areas.

A much more serious criticism of the present arrangements in the United Kingdom is that they have failed to prevent the cyclical pattern of rubella.[4] In contrast, the United States, with its policy of universal childhood rubella immunisation, has since 1977 consistently reported fewer annual registrations of the congenital rubella syndrome than the United Kingdom. In 1983, the most recent year for which complete figures are available, 25 cases of the congenital rubella syndrome were registered in the United Kingdom but only seven in the United States, a country with four times our population. In 1984 only two cases were registered in the United States.[5] We are aware that the figures for the United States probably underestimate the true incidence of the congenital rubella syndrome for several reasons, but these factors are equally applicable to the reporting system in the United Kingdom.[5]

We agree with those who have recently voiced dissatisfaction with the current unscientific policy in the United Kingdom and believe that the time has come to change this strategy to a programme of universal immunisation.[6-8] We propose that the aim should be the eradication of rubella from society, and this will ultimately require the immunisation of all children.

There is an excellent case for combining measles, mumps, and rubella immunisation at 15-18 months of age as is currently done in the United States and several other countries. By adopting such a policy in 1982 Sweden has shown that the complete eradication of measles, mumps, and rubella is entirely practicable.[9,10] More recently Finland has considerably reduced the incidence of these three diseases in its vaccinated population.[1] Model predictions suggest that a multistage policy that achieved 60% immunisation of 2 year old children, plus a continuation of the current policy in the United Kingdom of vaccinating teenage girls and continued surveillance and vaccination of adult women of childbearing age, would reduce the incidence of the congenital rubella syndrome[11]; success in eradicating the rubella virus is crucially dependent on the uptake of vaccine, and uniform vaccination of more than 80-85% of young children could achieve this.[12] We believe that a single vaccine that protects children against measles, mumps, and rubella rather than against measles alone will be more attractive to parents, thus further boosting its uptake. Donaghy argued that the epidemiological shift of mumps towards older age groups that occurs with a one dose programme still produced a net reduction in the number of cases and complications.[3] A two dose policy, however, would minimise such a shift[13] and could, for example, virtually eliminate the congenital rubella syndrome in 10 years. We should therefore follow the Finnish and Swedish example of reimmunising children at the age of 6 or 12.[1,10] Uptake of measles immunisation in Fife has risen dramatically in recent years but, disappointingly, is not yet high enough to have prevented our current epidemic. Much work remains to be done if we are to achieve the aims of the second conference on immunisation policies in Europe, which included the elimination of measles by 1990 and congenital rubella by 2000. Although the incidence of mumps may be decreasing in Scotland,[3] the disease is clearly still responsible for several unnecessary admissions to hospital with unpleasant and undesirable complications.

The administrative difficulties of adopting the Scandinavian model are less than might be expected. Measles-mumps-rubella vaccination at 15-18 months of age can be substituted for measles vaccine alone, and giving multiple vaccination at 12 years of age to both boys and girls means that the only extra work is immunising boys, as girls are already being immunised. Vaccination of women of childbearing age who are not immune would of course continue as at present. The effectiveness of such an immunisation schedule has, we believe, been proved, and this provides a basis for a decision to change the policy in the United Kingdom. Until we adopt this approach and fall into line with Scandinavian practice there is no prospect of rubella, measles, or mumps ever being eradicated in this country. The time to start doing this is now.

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